

CHAPTER 6: Learning

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LEARNING

Classical Conditioning

Operant Conditioning

Observational Learning

LEARNING

DEFINING LEARNING

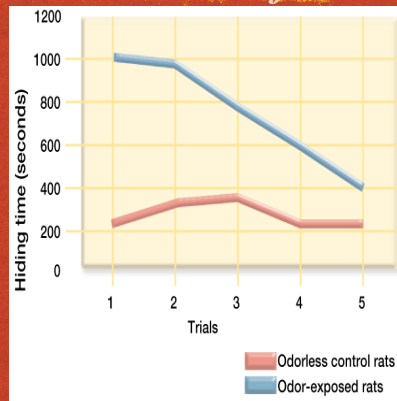
- The modification through experience of pre-existing behavior and understanding.
 - Adaptation by learning is flexible.
 - Humans adapt to life's demands by learning and not by instinct.
 - The key to learning is association.
 - Learning plays a center role in the development of most aspects of human behavior.

SIMPLE FORM OF LEARNING

HABITUATION

Habituation of Fear

- The tendency of an organism to become familiar with a stimulus as a result of repeated exposure
- It is the simplest form of learning. (forget you are wearing a watch or glasses / don't hear the clock)
- Note here that rats repeatedly exposed to a cat's odor, and no cat, hid less over time.
- Can easily return if stimulus changes - dishabituation



<http://www.youtube.com/watch?v=Kfu0FAAu-I0>

SIMPLE FORM OF LEARNING

SENSITIZATION

- Appears as an increase in responsiveness to a stimulus
- Occurs when people or animals show exaggerated responses to unexpected, potentially threatening sights or sounds, especially during periods of emotional arousal.
- You visit a haunted house and when touched by something small or hit with a slight blast of air you panic, scream or swing in the air.



HABITUATION & SENSITIZATION

- Both provide organisms with a useful way to adapt to their environment.
- They only apply to one stimulus. It does not involve association of one stimulus with another.
- Called nonassociative learning.

LEARNING

CLASSICAL CONDITIONING

- A type of learning in which an organism comes to associate one stimulus with another (also called Pavlovian conditioning).
- <http://www.spike.com/video/office-jim-trains/2820493>
- Classical Conditioning involves learning that one event predicts another.
- This type of learning involves
 - An unconditioned stimulus
 - An unconditioned response
 - A conditioned stimulus
 - A conditioned response

CLASSICAL CONDITIONING

PAVLOV'S DISCOVERY

- **An unconditioned stimulus (US)**
 - A stimulus (an event) that triggers an unconditioned (involuntary) response.
 - Examples: food, loud noises, painful stimuli
 - In Pavlov's experiments, the US was the food.
- **An unconditioned response (UR)**
 - An unlearned response to an unconditioned stimulus.
 - Examples: salivation to food, jumping when hearing a loud noise, moving away from something painful
 - In Pavlov's experiments, salivation to the food was the UR.

CLASSICAL CONDITIONING

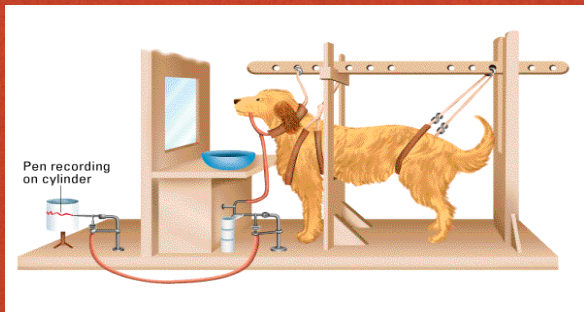
PAVLOV'S DISCOVERY

- **A conditioned stimulus (CS)**
 - A neutral stimulus (an event) that comes to evoke a classically conditioned (learned) response due to being presented shortly before the US.
 - In Pavlov's experiments, the CS was the bell.
- **A conditioned response (CR)**
 - A learned response to a classically conditioned stimulus.
 - In Pavlov's experiments, salivation to the bell was the CR.

CLASSICAL CONDITIONING

PAVLOV'S DISCOVERY

Pavlov's Apparatus



- Pavlov classically conditioned dogs to salivate. Salivation was measured by a pen attached to a slowly rotating cylinder of paper.

CLASSICAL CONDITIONING

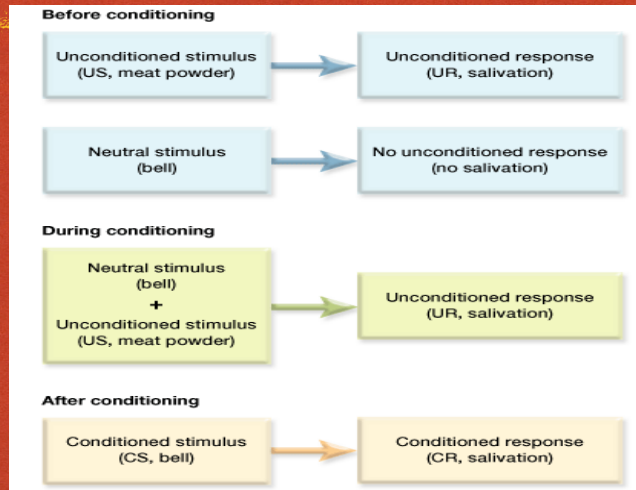
- *Before Conditioning*
 - Unconditioned Stimulus (US) elicits Unconditioned Response (UR)
 - Meat powder leads to salivation
 - Neutral stimulus elicits no particular response
 - Bell leads to orienting response only, no salivation

CLASSICAL CONDITIONING PAVLOV'S DISCOVERY

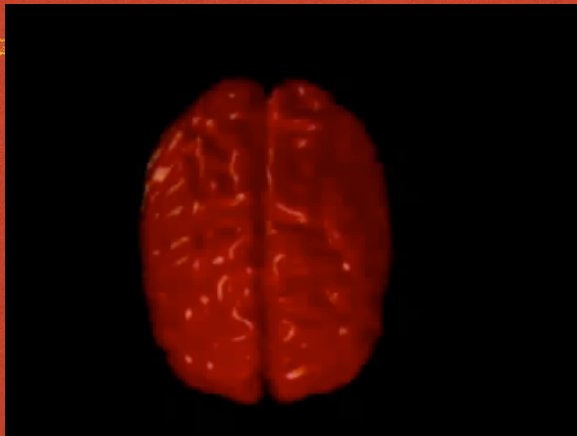
- *During and After Conditioning*
 - Conditioning: Neutral Stimulus is Paired with the Unconditioned Stimulus
 - Bell rings, then meat powder is delivered
 - This procedure is repeated several times
 - After Several Trials of pairing the bell with the food
 - When Bell rings, dog salivates
 - The Bell is now a Conditioned Stimulus (CS)
 - Salivation is a Conditioned Response (CR)

CLASSICAL CONDITIONING

PAVLOV'S DISCOVERY



VIDEOS TO EXPLAIN



- <http://www.youtube.com/watch?v=cP5ICleK-PM>
- <http://www.youtube.com/watch?v=hhqumfpxuzl>

CLASSICAL CONDITIONING

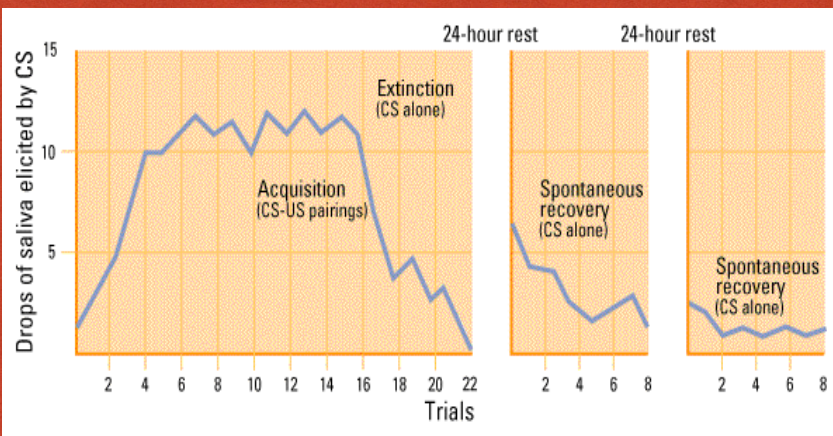
BASIC PRINCIPLES

- **Acquisition**
 - Formation of a learned response to a stimulus through presentation of an unconditioned stimulus
- **Extinction**
 - Elimination of a learned response by removal of the unconditioned stimulus
- **Spontaneous Recovery**
 - Re-emergence of an extinguished conditioned response after a rest period

CLASSICAL CONDITIONING

BASIC PRINCIPLES

The Rise and Fall of a Conditioned Response

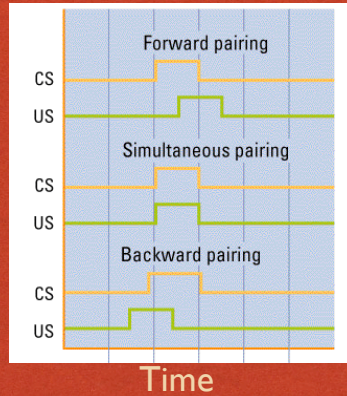


CLASSICAL CONDITIONING

BASIC PRINCIPLES

Temporal Relations in Classical Conditioning

- In forward pairing, the CS precedes the US.
 - Easiest conditioning
- In simultaneous pairing, the CS and US occur together.
- In backward pairing, the CS follows the US.
 - Most difficult



CLASSICAL CONDITIONING

BASIC PRINCIPLES

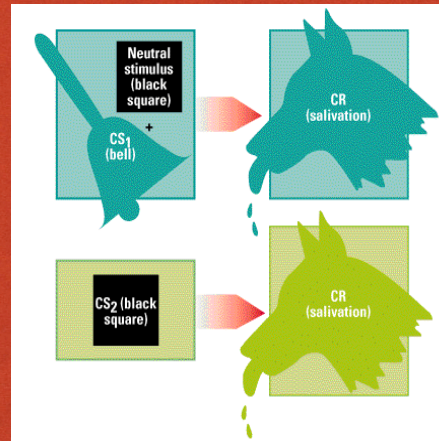
- **Stimulus Generalization**
 - The tendency to respond to a stimulus that is similar to the conditioned stimulus
- **Discrimination**
 - In classical and operant conditioning, the ability to distinguish between different stimuli

CLASSICAL CONDITIONING

BASIC PRINCIPLES

Higher-Order Conditioning

- With repeated pairing, a neutral stimulus can be linked with a CS.
 - The bell (CS) is paired with a black square.
- This neutral stimulus becomes a CS.
 - In the example, the black square elicits salivation.
- One CS was used to create another CS.



CLASSICAL CONDITIONING

PAVLOV'S LEGACY

THE CONDITIONING OF LITTLE

ALBERT

- An 11-month old boy – named “Albert” – was conditioned to fear a white laboratory rat.
- Each time he reached for the rat, Watson made a loud clanging noise right behind Albert.
- Albert's fear generalized to anything white and furry.
- Including rabbits and a Santa Claus mask
- <http://www.youtube.com/watch?v=JA96Fba-WHk&feature=related>

